

CLAIMS:

1. A liquid injection apparatus, comprising:

a liquid injecting head including a liquid injecting
5 surface, the liquid injecting head being movable along a
direction in which the surface injecting surface is extended;
and

a cap placed in tight contact with the liquid injecting
surface for defining a sealed space;

10 wherein the liquid injecting head is allowed to move
toward or away from a contact position at which the cap is
placed in tight contact with the liquid injecting head; and

wherein the cap is allowed to move along a direction
crossing the liquid injecting surface toward or away from the
15 contact position at which the cap is placed in tight contact
with the liquid injecting surface and is also allowed to move
in a plane parallel to the liquid injecting surface.

2. The liquid injection apparatus according to Claim 1,
20 wherein, when maintained in tight contact with the liquid
injecting surface, the cap is allowed to move together with
the liquid injecting head.

3. The liquid injection apparatus according to Claim 1,
25 wherein the cap is allowed to move along a direction crossing
a moving direction of the liquid injecting head and in the
plane parallel to the liquid injecting surface.

4. A liquid injection apparatus, comprising:

30 a liquid injecting head, the liquid injecting head
including a liquid injecting surface;

a cap placed in tight contact with the liquid injecting
surface for defining a sealed space;

a head moving mechanism for moving the liquid injecting
35 head along a direction in which the liquid injecting surface

is extended, such that the liquid injecting head is allowed to move toward or away from a contact position at which the cap is placed in tight contact with the liquid injecting head; and

5 a cap moving mechanism for moving the cap toward or away from the contact position at which the cap is placed in tight contact with the liquid injecting surface, the cap moving mechanism including a cap holding mechanism for holding the cap in a state slidable along a moving direction of the liquid injecting head and positioning the cap at the contact
10 position.

5. The liquid injection apparatus according to Claim 4, wherein the cap holding mechanism has an urging member for urging the cap toward the contact position, and a positioning
15 portion for receiving the urged cap and positioning the cap at the contact position.

6. The liquid injection apparatus according to Claim 4, further including a stopper for restricting the movement of
20 the liquid injecting head, which is held in tight contact with the cap, to a predetermined range in which the cap is permitted to slide.

7. The liquid injection apparatus according to Claim 6,
25 wherein the stopper is formed in the cap moving mechanism, and the stopper is moved to a position at which the stopper restricts the movement of the liquid injecting head when the cap moving mechanism moves the cap to the contact position.

30 8. The liquid injection apparatus according to Claim 4, wherein the head moving mechanism reciprocates the head substantially in a horizontal direction, the cap moving mechanism moving the cap vertically, the cap moving mechanism having a pair of stoppers spaced from each other along the
35 moving direction of the liquid injecting head; and

wherein, when the cap is moved toward the liquid injecting head held at the contact position, a head holding member is placed between the stoppers for restricting the movement of the head.

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9. The liquid injection apparatus according to Claim 8, wherein the stoppers are formed integrally with the cap holding mechanism.

10 10. The liquid injection apparatus according to Claim 4, wherein the cap has an engaging piece that becomes engaged with the liquid injecting head when the cap is placed in tight contact with the liquid injecting surface.

15 11. A liquid injection apparatus, comprising:
a liquid retaining portion for retaining liquid;
a liquid injecting head for injecting the liquid supplied from the liquid retaining portion in a predetermined injecting zone;

20 a cap for sealing the liquid injecting head outside the liquid injecting zone; and

a maintenance unit for discharging the liquid injected by the liquid injecting head through the interior of the cap,

wherein, when the liquid injecting head is moved in the
25 injecting zone, the cap is placed at a reference position at which the cap is escaped from the path of the liquid injecting head , and when the liquid injecting head is moved outside the liquid injecting zone, the cap is located at a set position at which the cap opposes the liquid injecting head.

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12. The liquid injection apparatus according to Claim 11, wherein the maintenance unit includes a casing main body and a slider on which the cap is mounted, the slider being permitted to move with respect to the casing main body by contacting the
35 liquid injecting head;

wherein the casing main body has a guide portion for supporting the cap at the reference position; and

wherein the guide portion guides the cap to the set position in accordance with the movement of the slider with
5 respect to the casing main body.

13. The liquid injection apparatus according to Claim 12, wherein the cap has a positioning member that is capable of contacting the guide portion;

10 wherein, when supported by the guide portion with the positioning member such that the cap, the cap is maintained at the reference position; and

wherein, when guided by the guide portion with the positioning member, the cap is placed at the set position.
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14. The liquid injection apparatus according to Claim 12, wherein the slider is secured to the casing main body with a first urging member, the first urging member urging the slider toward the casing main body such that the cap is placed at the
20 reference position.

15. The liquid injection apparatus according to Claim 12, wherein a drive mechanism is provided in the casing main body, the driving mechanism reciprocating the slider vertically with
25 respect to the casing main body.

16. The liquid injection apparatus according to Claim 15, wherein the cap is secured to the slider with a second urging member urging the cap vertically, the slider including a guide
30 member for vertically guiding the movement of the positioning member urged by the second urging member, the guide member restricting an upper limit of the vertical movement of the positioning member.

35 17. The liquid injection apparatus according to Claim 11,

wherein the cap includes a support member contacting and supporting the liquid injecting head when the cap is located at the set position.

5 18. The liquid injection apparatus according to Claim 11, wherein the interior of the cap is divided into at least two sections.

10 19. The liquid injection apparatus according to Claim 18, wherein the liquid retaining portion retains a pigment ink and a reactant ink.